京都大学化学連携研究教育拠点（２１世紀 COE）講演会

演題(Title)：Molecular-Scale Devices for Biophysics

講演者(Speaker)：Dr. Derek Stein

（Delft University of Technology, Delft, The Netherlands）

日時(Date)：平成１５年１０月２９日（水）１６時から１７時まで

October 29 (Thursday), 2003　16:00-17:00

場所(Room)：　京都大学工学研究科 桂キャンパス化学系講義室４
(Lecture Room 4 (A2-307))

講演内容(Abstract)

We envision solid-state nanopores at the heart of a device capable of detecting, manipulating, and ultimately sequencing individual DNA molecules. To reliably fabricate holes whose diameter is commensurate with that of DNA, low energy ion beams are employed to tailor the size of holes in solid-state membranes by a new technique we call "ion beam sculpting". The transmission rate of ions through the hole is monitored in real time to enable feedback-control of the fabrication process with nanometre precision, and to study transport of matter at the nanometre scale.　When put to the task of characterizing individual DNA molecules in their natural salt-water environment, solid-state nanopores yield electronic signals that probe conformations and structure of single molecules. The integration of solid-state nanopores with other nanofabricated tools such as tunneling electrodes or nanofluidic channels should enhance the sensitivity to molecular structure that is the key to realizing a high-speed, single-molecule DNA sequencer.

連絡先: 分子工学専攻
田中一義（電話：075-383-2549）